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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,384	02/27/2004	Louis L. Hsu	FIS920030364US1	2383

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INTERNATIONAL BUSINESS MACHINES CORPORATION  
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HOPEWELL JUNCTION, NY 12533

EXAMINER

DOLE, TIMOTHY J

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2858

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/708,384	<b>Applicant(s)</b> HSU ET AL.	
	<b>Examiner</b> Timothy J. Dole	<b>Art Unit</b> 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-30 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/27/04</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. Figures 1-3 are considered to be Prior Art since they are disclosed in the cited IEEE reference. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 10 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Since claim 10 indirectly depends on claim 8, it does not add any further limitations, since every limitation of claim 10 is already disclosed in claim 8. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2858

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 6-8, 11, 16-19, 21, 22, 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by IEEE Standard for Boundary-Scan Std 1149.6-2003 (hereinafter referred to as IEEE).

Referring to claims 1 and 18, IEEE discloses a system and method of detecting a fault in a transmission link, comprising: providing a reference level selectable according to one of a direct current (DC) mode threshold (fig. 33 ( $V_{bias}$ )) and an alternating current (AC) mode threshold (fig. 33 (threshold generated by  $R_f$  and  $C_f$ )), wherein the DC mode threshold is a fixed potential (fig. 33) and the AC mode threshold varies with time (fig. 33 (threshold varies due to AC coupling of input signal through  $R_f$  and  $C_f$ )); and comparing (fig. 33 (comparators)) an input signal (fig. 33 (signal at A)) arriving from the transmission link with one of the DC mode threshold and the AC mode threshold to determine whether a fault is present in the transmission link (fig. 33 and page 30, first paragraph).

Referring to claims 2 and 19, IEEE discloses the system and method as claimed wherein the AC mode threshold varies as a version of the input signal decaying with time (fig. 33 (input signal decays due to AC coupling which is connected to AC threshold generating section  $R_f$  and  $C_f$ )).

Referring to claims 6 and 21, IEEE discloses the system and method as claimed wherein said reference level generator includes a low-pass filter (fig. 33 ( $R_f$  and  $C_f$ ))

coupled to the input signal (fig. 33) and is operable to generate the AC mode threshold from the input signal (fig. 33).

Referring to claim 7, IEEE discloses the system as claimed wherein said low-pass filter includes a series resistor (fig. 33 (Rf)) coupled between the input signal and said comparator (fig. 33).

Referring to claim 8, IEEE discloses the system as claimed wherein said low-pass filter includes a shunt capacitor (fig. 33 (Cf)) coupled between the reference level and a fixed potential (fig. 33).

Referring to claims 11 and 22, IEEE discloses the system and method as claimed wherein said system is operable to detect a short-circuited capacitor in an AC coupled transmission link when said comparator fails to detect a crossing of the DC mode threshold by the input signal (page 29, first paragraph).

Referring to claims 16 and 25, IEEE discloses the system and method as claimed wherein said comparator is operable to detect a falling crossing of the reference level when the input signal reaches a first value and is operable to detect a rising crossing of the reference level when the input signal reaches a second value, wherein the separation between the first value and the second value is adjustable according to a setting of said comparator (pages 28-29, section 4.8). It should be noted that the hysteresis voltages are set according to the comparator (page 27, first paragraph, line 3), and are therefore considered to be adjustable.

Referring to claims 17 and 26, IEEE discloses the system and method as claimed wherein said reference level generator is operable to maintain the DC mode threshold at a

substantially constant level, wherein said comparator is operable to detect a falling crossing of the DC mode threshold and to detect a rising crossing of the DC mode threshold at substantially the same level of the input signal (pages 28-29, section 4.8).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-5, 12-15, 20, 23, 24 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over IEEE (applied above) in view of Lin et al. (US 6,597,224).

Referring to claims 3, 4, 12, 20 and 23, IEEE discloses the system and method as claimed except wherein said reference level generator is operable to selectably switch between outputting a lower threshold and an upper threshold as the DC or AC mode threshold, wherein said comparator is operable to detect a rising crossing of the upper threshold and to detect a falling crossing of the lower threshold.

Lin et al. discloses a comparator (fig. 5 (CP)) wherein a reference level generator (fig. 5 (510) and (530)) is operable to selectably switch between outputting a lower threshold (fig. 5 (Vtl)) and an upper threshold (fig. 5 (Vth)) as the DC or AC mode threshold (fig. 5 (Vt)), wherein said comparator is operable to detect a rising crossing of the upper threshold and to detect a falling crossing of the lower threshold (column 4, lines

32-65). It should be noted that while Lin et al. discloses the DC mode thresholds, corresponding AC mode thresholds could similarly be applied.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the thresholds of Lin et al. into the system and method of IEEE for the purpose of providing tracking the input signal across two thresholds (column 4, lines 32-65).

Referring to claim 5, IEEE discloses the system as claimed wherein said reference level generator further comprises a multiplexer (fig. 33 (switch for switching between AC and DC modes)) operable to select between outputting the DC mode threshold and the AC mode threshold (page 29, last paragraph, last sentence).

Referring to claim 13 and 24, IEEE discloses the system and method as claimed except wherein the separation between the first level and the second level is adjustable according to a setting of said comparator.

It should be noted that according to MPEP 2144.04 (V) (D), adjustability does not render a claim patentably distinct over the prior art.

It would have been obvious to one skilled in the art at the time of the invention to incorporate adjustable threshold separation into the system and method of IEEE for the purpose a more widely usable device.

Referring to claims 14, 15 and 27-30, IEEE discloses the system and method as claimed except wherein said reference level generator is further operable to vary the reference level between the first level and the second level in response to feedback from said comparator (fig. 5), wherein the reference level is set to the first level when said

comparator detects a rising crossing of the reference level, and the reference level is set to the second level when said comparator detects a falling crossing of the reference level (column 4, lines 32-65).

*Allowable Subject Matter*

7. Claims 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: claim 9 is considered to contain allowable subject matter due to the inclusion of claim limitation: "wherein said low-pass filter includes a field effect transistor (FET) having a drain to which the input signal is coupled, said FET having a controlled transconductance". Claim 10 is considered to contain allowable subject matter due to its dependence on claim 9.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to show the state of the art with respect to testing transmission links.

USPN 2005/0094737 to Vorenkamp: This publication shows an apparatus for detecting defects in serial link transceivers.

USPN 6,181,454 to Nagahori et al.: This patent shows an apparatus for testing links using DC and AC thresholds.



Art Unit: 2858

USPN 5,142,526 to Moriue et al.: This patent shows an apparatus for diagnosing transmission failure using an AC threshold and a comparator.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Dole whose telephone number is (571) 272-2229. The examiner can normally be reached on Mon. thru Fri. from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Timothy J. Dole

